Bureau of Land Management, Buffalo Field Office
Dry Muddy Creek and Patchwork Allotments Grazing Lease Transfer
Environmental Assessment (EA), WY-070-EA11-246

1.0 Introduction

PROJECT TITLE: Dry Muddy Creek and Patchwork Allotments 10-Year Term Grazing Lease Transfer and Issuance

LOCATION: The former Dry Muddy Creek Allotment, which is being split into two separate allotments as follows:
Dry Muddy Creek (02407): T. 48 N., R. 82 W. Section 9: NW¼SW¼.
Patchwork (16751): T. 48 N., R. 83 W. Section 1: SW¼SW¼.
(see attached map)

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CASEFILE NUMBER: 4907681 and 4914739

APPLICANT: Ronald & Kathleen McPhee, Patchwork Partners, LP

This site-specific EA tiers to and incorporates by reference the Buffalo Resource Management Plan (RMP) dated October 4, 1985, and the 2001 amendment. This EA follows the format in Chapter 8 of the BLM National Environmental Policy Act Handbook, H-1790-1.

1.1 Background

Ronald & Kathleen McPhee divided and transferred a portion of their base property to Patchwork Partners, LP. This base property has grazing preference attached to it as the Dry Muddy Creek Allotment. Because the base has been divided into two parts, with one retained by the McPhees and one transferred to Patchwork Partners, the grazing preference attached to the property also needs to be divided, creating two allotments. Patchwork Partners, LP applied for transfer of the grazing privileges attached to their portion of the base property and a lease authorizing grazing on the new Patchwork Allotment. Ron and Kathleen McPhee have applied for a lease authorizing grazing on the modified Dry Muddy Creek Allotment. Per 43 CFR 4110, the McPhees and Patchwork Partners have preference in obtaining the grazing privileges attached to this property.

1.2 Purpose and Need for the Proposed Action

The BLM promotes healthy sustainable rangeland ecosystems and provides for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands while complying with land use plans and multiple use objectives, including environmental and economic values, as provided in 43 CFR 4100, the Taylor Grazing Act of 1934 and the Federal Land Policy and Management Act (FLPMA) of 1976. The proposed action would allow livestock grazing on public land through the exercise of grazing preference attached to controlled base property while considering these multiple use objectives (43 CFR 4110).

There is need for the action due to the requirement that an individual or group desiring to graze livestock on public land must hold a valid grazing authorization in the form of a permit or lease; the BLM is to balance the authorization with other uses of public land. The current grazing lessee has a preference to receive the authorization if grazing is to continue on the associated allotment. The BLM issued the current grazing leases in 2011 under Public Law 106-291 allowing for authorization of grazing leases until completion of environmental analysis.

1.3 Decision to be Made

The BLM will decide whether or not to divide and transfer the grazing preference on the former Dry Muddy Creek Allotment from Ronald & Kathleen McPhee to Ronald & Kathleen McPhee and Patchwork Partners, LP. The BLM will also decide whether or not to issue grazing leases, with no change in terms and conditions relative to each parcel of public land, to Patchwork Partners for the Patchwork Allotment and Ron & Kathleen McPhee for the modified Dry Muddy Creek Allotment, and how to balance the proposed action with multiple public uses.

1.4 Conformance with Land Use Plan and Other Laws, Regulations, and Policies

The proposed action conforms to the record of decision (ROD) for the Buffalo Resource Management Plan (RMP) approved October 4, 1985, the 2001, 2011 amendments, and the Powder River Basin Oil & Gas Project Final Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS), 2003. The action is also consistent with the land use plan terms and conditions as required by 43 CFR 1610.5-3(a) and Interior Department Order 3310. The Buffalo RMP EIS analyzed the impacts of grazing.

This EA fulfills the NEPA requirement for site-specific analysis. The proposed action is in accordance with the following laws and/or regulations, other plans, and is consistent with federal, Sstate, and local laws, regulations:

- Taylor Grazing Act of June 30, 1934
- Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act of 1978
- Endangered Species Act of 1973
- 43 CFR § 4100 Grazing Administration-Exclusive of Alaska
- Clean Water Act Section 303d
- National Historic Preservation Act of 1966 Section 106
- National Environmental Policy Act of 1969
- Sikes Act of 1969 (Habitat Improvement on Public Land)
- Fish and Wildlife Improvement Act of 1978
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
- Grazing Regulations as codified in 43 CFR § 4100 as amended in 2005
- BLM Instruction Memorandum No. WY-2010-012, Greater Sage-Grouse Habitat Management Policy on Wyoming BLM Administered Public Lands including the Federal Mineral Estate (Maintained into the Buffalo RMP)
- DOI Secretarial Order No.3310—Protecting Wilderness Characteristics on Lands Managed by the BLM, Dec. 2010

1.4.1 Wyoming Standards for Rangeland Health

Particularly applicable to livestock grazing management by the BLM are the Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management. The Secretary of the Interior developed and approved the Standards and Guidelines on August 12, 1997. They address watersheds, ecological condition, water quality and habitat for special status species. These policies and guidelines are critical to achieving ecologically sustainable range management.

The regulation at 43 CFR 4180.1 details four fundamentals of rangeland health. They are:

1. Watersheds are in or are making progress toward properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support water infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

2. Ecological processes including the hydrologic cycle, nutrient cycle, and energy flow are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

3. Water quality complies with state water quality standards and achieves, or is making significant progress toward achieving established BLM management objectives such as meeting wildlife needs.

4. Habitats are, or are making significant progress toward, being restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal Proposed Candidate and other special status species.

The BLM developed the Wyoming Standards for Healthy Public Rangelands and Guidelines for Livestock Grazing Management (S&Gs) to achieve the four fundamentals of rangeland health detailed above. These Standards relate the minimal acceptable conditions for BLM administered public rangelands, including the health, productivity, and sustainability of the land. Observing, measuring, and monitoring field conditions of range sites, on a watershed scale, determine whether a Standard is being achieved. In accordance with the grazing regulations, if livestock grazing practices are found to be contributing to a failure to meet a Standard, corrective action is developed and implemented before the next grazing season. Guidelines provide reasonable, responsible, and cost-effective management practices at the grazing allotment and watershed levels to attain and maintain rangeland Standards. These management practices either maintain existing desirable conditions or move rangelands toward statewide Standards within reasonable timeframes.

The six Standards for Healthy Public Rangelands are:

> Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel success and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water Quality meets state standards.

Standard 6: Air Quality meets state standards.

The Buffalo RMP has been amended to adopt the Wyoming Standards for Healthy Rangelands. An assessment of the S&Gs has not yet been conducted for the Dry Muddy Creek and Patchwork Allotments. These allotments are "C" category allotments, which are low priority for evaluation (see Section 3.3). In 1998 the BFO developed a schedule for evaluating S&Gs. The allotments on this list are all in the "I" and "M" categories, which are highest priority for management and evaluation as described in the WY S&Gs Implementation Plan. Active management of category "C" isolated public lands is at a public cost and management effort largely beyond the scope of generating public benefit; see generally, Ted Lapis v. U.S., 178 IBLA 62 (2009).

1.5 Scoping and Issues

The BLM conducts its decision-making in accordance with the requirements of the Council on Environmental Quality (CEQ) regulations implementing NEPA, and the Department of Interior (DOI) and BLM policies and procedures implementing NEPA. NEPA and the associated regulatory and policy framework require federal agencies to involve the interested public in their decision-making.

This EA received internal scoping. The identified issues are:

- How would the proposed action affect current livestock grazing management?
- Would the proposed action impact riparian areas?
- Would the proposed action impact invasive species?
- Would and how would the proposed action affect any special status species, particularly sage-grouse (candidate species)?
- Would the proposed action impact migratory bird habitats or populations?
- Would the proposed action impact cultural resources and/or lands with wilderness characteristics?

This EA is sent to interested parties of record and is posted on the Buffalo Field Office (BFO) website to solicit public and cooperating agency comments over a 30-day period. The BFO uses received comments to assess whether the EA covers the issues raised and adequately addresses their significance. The BFO's response consists of either addressing public comments in the decision record or results in the preparation of a new EA.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A – No Livestock Grazing

Under this alternative the BLM will not permit livestock grazing on the Dry Muddy Creek and Patchwork Allotments. The previous grazing leases will be cancelled in accordance with 43 CFR parts 4100 and 1600 to eliminate grazing on the allotments.

2.2 Alternative B- Proposed Action – Transfer of Grazing Preference and Issuance of Leases without Modification

The BFO proposes to maintain and improve land health and enhance habitat conditions on public lands within the BFO stewardship area by maintaining and/or enhancing upland grassland health and sagebrush habitats (species composition and structure) and maintaining riparian, wetland, and aquatic habitats through existing livestock grazing management.

The BLM also proposes to transfer grazing privileges from Ron & Kathleen McPhee to Patchwork Partners, LP, and to issue new 10-year term grazing leases to the McPhees for the Dry Muddy Creek Allotment and to Patchwork Partners for the Patchwork Allotment. There are no modifications to the current terms and conditions relative to each parcel of BLM as outlined in the existing lease held by Ronald & Kathleen McPhee. Table 1 lists the details of the proposed BLM grazing leases.

Table 1

Allotment*	Livestock		Season of Use	% PL	AUMs	Type Use
	Number	Kind				
Dry Muddy Creek Allotment (02407)	14	Cattle	3/01 – 2/28	6	10	Active
Patchwork Allotment (16751)	14	Cattle	03/01—2/28	5	8	Active

*BLM recognizes that these allotments consist primarily of non-federal lands. As such, BLM will not limit the season of use or number of livestock as long as grazing use is not to the detriment of the public lands. The lease schedule shown is primarily for billing purposes.

The proposed action will transfer grazing privileges to Patchwork Partners, LP from Ronald & Kathleen McPhee and issue new 10-year term grazing leases to Patchwork Partners and Ronald & Kathleen McPhee. Both applicants are currently in good standing with the BLM and meet all mandatory qualifications for obtaining a grazing lease per 43 CFR 4110.1 and 4110.2. In accordance with Title 43 CFR 4130.2(a), "Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the BLM that are designated as available for livestock grazing through land use plans."

The applicants are not proposing any projects or other surface disturbing activities in connection to these lease transfers and issuances. The BLM will analyze any future range improvement projects associated with these allotments under separate, site-specific EAs.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

3.1.1 Location

The Dry Muddy Creek and Patchwork Grazing Allotments are about 13 miles south of Buffalo, Wyoming in Johnson County. The allotments are mixtures of public, private, and state lands (lands managed by the Office of State Lands and Investments). Private lands compose the majority of both allotments, with each containing one 40 acre parcel of BLM. There is no legal public access to the public lands in the allotments.

3.1.2 General Description

The Dry Muddy Creek and Patchwork Allotments are typical of the land forms, soils, and vegetation in the area of influence for the Upper Crazy Woman drainage system. Differences in dominant species in the allotments vary with soil type, aspect, topography, and water availability. Annual precipitation is the principal factor limiting forage production. Floodplains and lowlands with intermittent streams are the most productive sites and the very steep escarpments, ridges, and slopes are the least productive.

Muddy Creek forms part of the eastern border of the Dry Muddy Creek and Patchwork Allotments. However, this creek is on private land. Any other stream channels lying in these allotments are intermittent streams. This means that water flow generally occurs during the wet season (50% of the year or less) so water typically only flows in these channels during times such as spring runoff. Water ceases to flow in these channels during drier periods but may still continue to run underground. As such, there may or may not be riparian vegetation associated with intermittent stream channels. Also, they are not a reliable source of water for livestock or wildlife. There are also a few small reservoirs located on private and state land in the allotments. These sites may have riparian habitat, but are not subject to surface management by BLM.

The public land in these allotments is clearly lacking in wilderness characteristics due to its small size (less than 5,000 acres).

The soils in the Dry Muddy Creek and Patchwork Allotments vary greatly depending on topographic location, slope, elevation, and precipitation. The climate of the area is characterized by relatively low amounts of precipitation, averaging between 10 and 19 inches annually. The majority of soils in these allotments are loams.

Wyoming big sagebrush is a significant component of the plant community associated with loamy sites, with densities ranging from 2-12% throughout the allotments. Cool-season mid-grasses make up the majority of the understory with the balance made up of short warm-season grasses, introduced annual grasses, and miscellaneous forbs. The dominant cool season mid-grass species include green needlegrass (*Nassella viridula*), needleandthread (*Hesperostipa comata*), and rhizomatous wheatgrasses. Grasses can account for up to 75% of the vegetation in

this type of ecological site. With an elevation of approximately 5000 feet, the growing season is short, consisting of the months of April through mid-August.

Historically, native plants in northeastern Wyoming evolved under prehistoric conditions which included grazing and browsing by bison and other native ungulates, and an associated low frequency of fire. This community is well suited to grazing by both domestic livestock and wildlife year round.

3.1.3 Energy Development

The BLM permits federal mineral development (coal bed natural gas, conventional oil, and coal) in the PRB. This includes federal minerals below federal and/or private (split estate) surface. The BLM prepares EAs, as required by NEPA, for this federal mineral development. In general, companies submit proposals in the form of plans of development (PODs) that may consist of one to 200 wells. Currently the Dry Muddy Creek and Patchwork Allotments do not lie within any mineral development.

This grazing lease transfer and issuance does not affect the following resources, which receive no further analysis:

Air Quality	Mineral Resources	Visual Resource Management
Areas of Critical Environmental Concern (ACEC)	Native American Religious Concerns	Water Quality and Prime or Sole Source of Drinking Water
Environmental Justice	Paleontology	Wetlands and Riparian Zones
Prime or Unique Farmlands	Recreation	Wild and Scenic Rivers
Flood Plains	Soils	Wilderness Values
Hazardous or Solid Wastes	Traditional Cultural Properties	

3.2 Cultural Resources

Class III inventory for cultural resources has not occurred on the majority of the allotment, although the Wyoming Cultural Records Office database revealed that inventories related primarily to oil and gas development have discovered cultural sites. The Dry Muddy Creek and Patchwork Allotments contain 4 known cultural sites, 2 of which are eligible for the National Register of Historic Places, 1 is not eligible, and 1 is unevaluated. There may be many more unrecorded cultural sites, some which may be eligible for listing on the National Register, within the allotment.

3.3 Livestock Grazing

In 1985, BLM established three categories for allotments to identify areas where management was potentially needed, as well as to prioritize workloads and the use of range improvement funds. The categories classify allotments as Improve Existing Resource Conditions (I), Maintain Existing Resource Conditions (M), or Custodial Management (C) (USDI 2008). The Dry Muddy Creek and Patchwork Allotments are category "C" allotments, meaning their management is minimal in nature, due to the small amount of public land within the allotments. The BLM's rationale for this classification is that there are no identified resource problems, and the size and continuity of the public land is not conducive to more intensive management by the BLM. The allotment has a low potential for yielding a positive return on public investment in management or rangeland project development.

The Dry Muddy Creek Allotment consists of 40 acres of public land, 320 acres of state land, and 840 acres of deeded land. There are 10 AUMs associated with the federal lands in the allotment. The Patchwork Allotment consists of 40 acres of public land and 1460 acres of deeded land. There are 8 AUMs associated with the federal lands in the allotment. In both allotments, grazing of public land parcels is in conjunction with state and deeded lands.

3.4 Invasive Species/Noxious Weeds

Invasive species and noxious weeds exist in the affected environment. The primary species in the allotments are leafy spurge (*Euphorbia esula*), downy brome *(Bromus tectorum*) and to a lesser extent, Japanese brome (*Bromus Japonicus).* These *Bromus* species occur in such high densities and numerous locations throughout Northeast Wyoming that a control program is not considered feasible at this time.

3.5 Wildlife, Threatened & Endangered, Candidate and Sensitive Species

The BLM conducted wildlife evaluations to assess the occurrence of selected wildlife species and their habitats, as well as to evaluate the anticipated effects associated with issuance of these grazing leases on the Dry Muddy Creek and Patchwork Allotments. The evaluations included selected individual species or species groupings that are ecologically, economically, or socially important.

Evaluation methods included comparison of aerial imagery (1994 to 2009) and review of wildlife geospatial datasets (available at BFO). Datasets included occurrence information for big game, raptors, bald eagles, sage-grouse, sharp-tailed grouse, mountain plover, black-tailed prairie dogs, and sagebrush in the project area.

Wildlife habitats occurring on the Dry Muddy Creek and Patchwork Allotments are results of a complex history of natural and man-caused influences. Important natural influences included short- and long-term climate variation, infrequent wildfire, and ungulate grazing; especially by bison (Baker 2006; Mack and Thompson 1982). From about 1880 to 1910, the removal of native bison, and their subsequent replacement with “vast numbers” of cattle and excessive numbers of sheep, greatly influenced the PRB, including these two allotments (Cassity 2007; Patterson 1952). The combined impacts of cattle and sheep overstocking and climate may have initiated the ongoing epicycle of gully erosion that is evident throughout the Basin (Leopold and Miller 1954). Enactment of the Taylor Grazing Act of 1934 repaired early range degradation and aided the recoveries of reduced wildlife populations (Patterson 1952).

The following tables summarize the affected environment relative to selected wildlife.

Table 2. Summary of Species Habitat and Project Effects.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Amphibians				
Northern leopard frog (*Rana pipiens*)	Beaver ponds, permanent water in plains and foothills (SS Policy). Swampy, cattail marshes on the plains (WGFD CWCS).	NS	MIIH	Marginally suitable habitat may be present. Individuals or eggs may be trampled.
Columbia Spotted frog (*Ranus pretiosa*)	Breeds in the shallows of lakes, ponds, marshes, and small streams (NatureServe).	S	MIIH	Habitat may be present on private lands in the allotments. Individuals or eggs may be trampled.
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Grasslands, weedy fields (SS Policy). Un- or lightly grazed mixed-grass prairie, wet meadows, tallgrass prairie. Prairie w/ scattered low bushes and matted vegetation (NatureServe). In dry years, grassy slough bottoms, alkali flats, and depressions in low lying grasslands.	S	MIIH	Trampling of nests may occur. Negligible impacts from livestock or humans disrupting breeding, dislodging nests, or causing adult to leave eggs or chicks unattended.
Bald eagle (*Haliaeetus leucocephalus*)	Mature forest cover often within one mile of large water body (SS Policy). Nests near large lakes and rivers in forested habitat where adequate prey and old, large-diameter cottonwood or conifer trees are available for nesting (WGFD CWCS). Migrating and wintering eagles congregate near open water areas where concentrations of prey are available, such as carcasses of ungulate species, and spawning areas for kokanee, trout, and other fish (WGFD CWCS).	NS	NI	Bald eagles may use the area for foraging. Activities associated with ongoing livestock grazing operations are not likely to occur to such an extent that foraging behavior will be disrupted.
Brewer's sparrow (*Spizella breweri*)	Basin-prairie shrub (SS Policy). Closely associated with sagebrush shrublands that have abundant, scattered shrubs and short grass (WGFD CWCS).	S	MIIH	Trampling of nests may occur. Negligible impacts from livestock or humans disrupting breeding, dislodging nests, or causing adult to leave eggs or chicks unattended.
Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub (SS Policy). Prefers open prairie, grassland, desert, and shrub-steppe habitats, and may also inhabit agricultural areas. It depends on mammals that dig burrows, which it uses for nesting, roosting, and escape (WGFD CWCS).	S	BI	Burrowing owls prefer grazed areas and use cow manure to line their nests.
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rock outcrops (SS Policy). Semi-arid open country, primarily grasslands, basin-prairie shrublands, and badlands (WGFD CWCS). Requires large tracts of relatively undisturbed rangeland and nests in rock outcrops, the ground, cutbanks, cliff ledges, or trees (WGFD CWCS).	NS	NI	Ferruginous hawks may forage in this area. The nearest nest is seven miles away. Livestock activity should not affect foraging behavior.
Loggerhead shrike (*Lanius ludovicianus*)	Basin-prairie shrub, mountain-foothill shrub (SS Policy). Grasslands interspersed with scattered trees and shrubs that provide nesting and perching sites.	S	MIIH	Ongoing livestock operations will not result in reduced shrub cover or habitat fragmentation. Nests may be toppled by livestock.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows (SS Policy). Inhabits a variety of grassland types ranging from moist meadow grasslands to agricultural areas to dry prairie upland, usually near water. Prefers a complex of shortgrass prairies, agricultural fields, wet and dry meadows and prairies, and grazed mixed-grass and scrub communities. Nests on the ground in habitat that includes grass <12", bare ground, shade, abundant invertebrate prey, and a minimum on 40 acres of suitable habitat (WGFD CWCS).	NS	MIIH	Marginally suitable habitat may be present. On private lands. Nests may be trampled.
Northern goshawk (*Accipiter gentilis*)	Conifer and deciduous forests (SS Policy). Mixed coniferous habitat of a wide variety of ages, structural conditions, and successional stages. Nests in mature stands with multilayered canopies with open understory, small openings, and water within 0.25 miles. Nest stands often on slopes with northerly exposures or in drainages or canyon bottoms protected by such slopes. Post-fledging area is a mosaic of forest types that provide hiding cover and abundant prey. Foraging area may include a variety of forest types and structures but most often consists of forests with a high density of large trees, high canopy closure, high basal area, and relatively open understories, interspersed w/ shrublands and openings with perching trees to observe prey. Winter habitat probably includes a variety of vegetation types, such as forests, woodlands, shrublands, and forested riparian strips (WGFD CWCS).	NP	NI	Forested habitat not present.
Peregrine falcon (*Falco peregrinus*)	Cliffs (SS Policy). Forages in open woodlands and forests, shrub-steppe, grasslands, marshes, and riparian habitats. Nests in cliffs that are usually proximate to habitats with abundant prey (WGFD CWCS).	NP	NI	Nest substrate not present. No known breeding pairs in proximity.
Sage sparrow (*Amphispiza billneata*)	Basin-prairie shrub, mountain-foothill shrub (SS Policy). Considered a sagebrush obligate. Inhabits prairie and foothills shrubland habitat where sagebrush is present. Prefers shrublands with tall shrubs and low grass cover, where sagebrush is clumped in a patchy landscape. Requires a large block of unfragmented habitat to successfully breed and survive (WGFD CWCS).	S	MIIH	Nests may be trampled. Cover will be affected.
Sage thrasher (*Oreoscoptes montanus*)	Basin-prairie shrub, mountain-foothill shrub (SS Policy). Considered a sagebrush obligate. Inhabits prairie and foothills shrubland habitat where sagebrush is present. Prefers shrublands with tall shrubs and low grass cover, where sagebrush is clumped in a patchy landscape (WGFD CWCS).	S	MIIH	Nests may be trampled. Uncommon cowbird host, which are associated with cattle. May be more susceptible to higher parasitism pressure.
Trumpeter swan (*Cygnus buccinator*)	Lakes, ponds, rivers (SS Policy). Inhabits shallow marshes, ponds, lakes, and river oxbows. Prefers stable, quiet, and shallow waters where small islands, muskrat houses, or dense emergent vegetation provide nesting and loafing sites.	NP	NI	Habitat not present.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
	Nutrient-rich water, with dense aquatic plant and invertebrate growth, provide the most suitable habitat. Winter habitat must provide extensive beds of aquatic plants that remain ice-free. In Wyoming, cold temps and ice restrict trumpeters to sites where geothermal waters, springs, or outflow from dams maintain ice-free areas (WGFD CWCS).			
White-faced ibis (*Plegadis chihi*)	Marshes, wet meadows (SS Policy). Inhabits marshes, wet-moist meadows, lakes, and irrigated meadows. Nests on the ground in bulrushes, cattails, or reeds; on a floating mat; or in a low tree.	NP	NI	Habitat not present.
Yellow-billed cuckoo (*Coccyzus americanus*)	Open woodlands, streamside willow and alder groves (SS Policy). Nests primarily in large stands of cottonwood-riparian habitat below 7000 feet, including such habitats that occur in urban areas. It is a riparian obligate species that prefers extensive areas of dense thickets and mature deciduous forests near water, and requires low, dense, shrubby vegetation for nest sites.	NS	MIIH	Marginally suitable habitat may be present. Ongoing livestock operations should not create significant additional impacts. Negligible impacts from livestock or humans disrupting breeding, dislodging nests, or causing adult to leave eggs or chicks unattended.
Migratory bird species (Various)	Multiple vegetation types are used for breeding, foraging and wintering, with habitat types ranging from grasslands and shrub-steppe to woodlands and riparian areas.	K	MIIH	Trampling of nests may occur. Negligible impacts from livestock or humans disrupting breeding, dislodging nests, or causing adult to leave eggs or chicks unattended. Ongoing livestock operations should not create significant additional impacts.
Plains Sharp-Tailed Grouse (*Tympanuchus phasianellus jamesi*)	Short and mixed-grass prairie, sagebrush shrublands, woodland edges, and river canyons. Common where grasslands are intermixed with other shrublands, especially wooded draws, shrubby riparian area, and wet meadows. Diets include a variety of forbs, grasses and insects. In winter, sharp-tailed grouse also feed on buds and catkins of deciduous trees or shrubs and berries. Birds are also known to feed on the buds of aspen and willow.	S	MIIHI	Properly managed grazing will maintain quality cover and habitat. Nests or chicks may occasionally be trampled. Ongoing livestock operations are not likely to change use of this area by Sharp-tailed grouse.
Mountain plover (*Charadrius montanus*)	Short-grass prairie with slopes < 5% (SS Policy). Low, open habitats such as arid shortgrass and mixed-grass prairies dominated by blue grama and buffalo grass with scattered clumps of cacti and forbs, and saltbush habitats of the shrub-steppe. Prefers to nest in large, flat grassland expanses with sparse, short vegetation (<=4") and bare ground. Adapted to areas that have been disturbed by prairie dogs, heavy grazing, or fire (WGFD CWCS).	S	MIIH	Suitable plover habitat is present. Birds may prefer grazed areas.
Fish				
Yellowstone cutthroat trout (*Oncoryhynchus clarki bouvieri*)	Mountain streams and rivers in Tongue River drainage	NP	NI	Habitat not present.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Mammals				
Black-tailed prairie dog (*Cynomys ludovicianus*)	Prairie habitats with deep, firm soils and slopes less than 10 degrees (SS Policy). Inhabits dry, flat, open, shortgrass and mixed-grass grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Constructs burrows in fine to medium soils (WGFD CWCS).	K	BI	Prairie dogs often prefer habitats grazed by livestock.
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines (SS Policy). Found in a wide range of habitats, including coniferous forests, woodlands, grasslands, and shrublands. Probably most common in xeric woodlands, such as juniper, ponderosa pine, and Douglas-fir. Typically forages over water, along forest edges, or within forests and woodlands. During summer, uses a variety of roosts, including rock crevices, tree cavities, caves, abandoned mines, and buildings. During winter, it hibernates in caves, abandoned mines, and buildings (WGFD CWCS). Must remain within commuting distance of drinking water. Roosts in rock crevices that typically face southeast or southwest and are in low elevation forests or woodlands (WGFD Bat Conservation Plan).	NP	NI	Habitat not present.
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forest, caves and mines (SS Policy). Primarily inhabits coniferous forest and woodland, including juniper, ponderosa pine, and spruce-fir. Typically forages over rivers, streams, and ponds within the forest-woodland environment. During summer, it roosts in a wide variety of structures, including cavities in snags, under loose bark, stumps, buildings, rock crevices, caves, and abandoned mines. During winter, it probably hibernates primarily in caves and abandoned mines (WGFD CWCS). Occasionally found in cottonwood riparian areas, basins, and sagebrush grasslands where roost sites are available (WGFD Bat Conservation Plan). Most likely found in areas close to a water source. May also occur more frequently in suitable habitat near rock outcroppings or cliffs. Primarily forages over rivers, streams, and ponds within the forest-woodland environment. Also forages over open areas such as campgrounds, small forest openings, and edges, although foraging areas are most likely to be close to a water source. Large-diameter conifer snags provide primary roosting habitat (WGFD Bat Cons.Plan).	NP	NI	Forested habitat not in proximity.
Spotted bat (*Euderma maculatum*)	Cliffs over perennial water (SS Policy). Occupies a wide variety of habitats, from desert scrub to coniferous forest. Most often observed in low deserts and basins and juniper woodlands. Roosts in cracks and crevices in high cliffs and canyons. May occasionally roost in buildings, caves, or abandoned mines, although cliffs are the only roosting habitat in which reproductive females have been located (WGFD CWCS). Often	S	MIIH	Some habitat may be present in the allotments. Roosting individuals may be trampled. Foraging behavior should not be affected.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
	occurs in association with canyons, prominent rock features, and permanent water sources. In desert environments, it forages in canyons, in the open, or over riparian vegetation. All recorded occurrences of spotted bats in WY were close to a permanent water source (WGFD Bat Conservation Plan).			
Swift fox (*Vulpes velox*)	Grasslands (SS Policy). Inhabits shortgrass and mixed-grass prairies. Often uses highway and railroad ROWs, agricultural areas, and sagebrush-grasslands. Closely associated w/ prairie dog colonies and uses underground dens year-round. Selects habitat with low-growing vegetation, relatively flat terrain, friable soils, and high den availability (WGFD CWCS).	S	MIIH	Inappropriate grazing could reduce hiding cover and increase susceptibility to predation.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Caves and mines (SS Policy). Occupies a variety of xeric to mesic habitats, including coniferous forests, juniper woodlands, deciduous forests, basins, and desert shrublands, and is absent only from the most extreme deserts and highest elevations. Requires caves or abandoned mines for roost sites during all seasons and stages of its life cycle, and its distribution is strongly correlated with the avaiilability of these features (WGFD CWCS). May be limited to areas with reliable, accessible sources of drinking water. Forages primarily along forest and woodland edges, riparian corridors, and in open areas near wooded habitat. May avoid open, grazed pasture land.	S	NI	Availability of roost sites is unknown, but foraging habitat is present. Ongoing livestock grazing unlikely to affect prey abundance or availability of foraging habitat.
Plants				
Limber Pine (*Pinus flexilis*)	High-elevation pine, often marking the tree line either on its own, or with Whitebark Pine (*Pinus albicaulis*), either of the Bristlecone pines, or Lodgepole Pine (*Pinus contorta*). Found in steeply-sloping, rocky and windswept terrain in the Rocky Mountains.	NP	NI	Habitat not present.
Porter's sagebrush (*Artemisia porteri*)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5300-6500 ft.	NP	NI	Habitat not present
William's wafer parsnip (*Cymopterus williamsii*)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	S	MIIH	Suitable habitat is present. Individual plants may be trampled

Presence
K - Known, documented observation within project area.
S - Habitat suitable and species suspected, to occur within the project area.
NS - Habitat suitable but species is not suspected to occur within the project area.
NP - Habitat not present and species unlikely to occur within the project area.

Project Effects
NI - No Impact.
MIIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards Federal listing or a loss of viability to the population or species.
WIPV - Will Impact Individuals or Habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species.
BI - Beneficial Impact

Table 3. Summary of Threatened and Endangered Species Habitat and Project Effects

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Endangered				
Black-footed ferret (*Mustela nigripes*)	Black-tailed prairie dog colonies or complexes > 1,000 acres.	NP	NE	Habitat not present. No prairie dog colonies of sufficient size.
Threatened				
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Riparian areas with permanent water	NS	NLJ	Suitable habitat has been modeled in the Dry Muddy Creek Allotment. However, an on-site visit revealed that suitable habitat was not present in the allotment. Riparian areas were dominated by upland vegetation and dense rhizomatous species and channelized with steep stream banks.
Candidates for listing				
Greater sage-grouse (*Centrocercus urophasianus*)	Basin-prairie shrub, mountain-foothill shrub (SS Policy). Also includes wet-moist meadows, and alfalfa and irrigated meadows when adjacent to sagebrush (WGFD CWCS).	S	MIIH	BLM land provides suitable wintering and nesting habitat. Incubating female, eggs, and/or chicks may occasionally be trampled. Ongoing livestock operations are not likely to change current use of this area by nesting sage-grouse.

Presence
K - Known, documented observation within project area.
S - Habitat suitable and species suspected, to occur within the project area.
NS - Habitat suitable but species is not suspected to occur within the project area.
NP - Habitat not present and species unlikely to occur within the project area.

Project Effects
LAA - Likely to adversely affect
NE - No Effect
NLAA - May Affect, not likely to adversely affect individuals or habitat.
NLJ – Not likely to jeopardize continued existence
MIIH – May impact individuals and habitat
NP—Habitat not present and species unlikely to occur within the project area.

3.5.1 Candidate Species

This environmental assessment discusses Greater sage-grouse (sage-grouse) in detail because they are classified as a candidate species, currently warranted for listing under the Endangered Species Act (USFWS 2010) and are thus of heightened management concern in the BFO. Sage-grouse are also a Wyoming BLM sensitive species and a WGFD Species of Greatest Conservation Need (SGCN).

Sage-grouse habitat is present on BLM lands in the Dry Muddy Creek and Patchwork allotments. Habitat models indicate that BLM lands in the allotments contain small amounts of high quality winter and nesting habitat (Doherty et al. 2007, Doherty 2008). There are no known leks in or near the allotments.

4.0 ENVIRONMENTAL EFFECTS

This section describes the environmental effects of the no action alternative (Alternative A), and those of the proposed action, Alternative B. The effects analysis addresses the direct and indirect effects of implementing the proposed action, the cumulative effects of the proposed action combined with reasonably foreseeable Federal and non-federal actions, identifies mitigation measures, and discloses any residual effects.

4.1 Direct and Indirect Effects

4.1.1 Cultural Resources

Alternative A- No Grazing

The absence of grazing will not result in impacts to cultural resources.

Alternative B- Preference Transfer & Lease Issuance

Any activity that removes vegetation or leads to soil erosion can cause impacts to cultural resources. Livestock concentration areas (such as those that form near water sources, supplemental feeding areas, fence corners, etc.) and livestock trail formation may result in impacts to cultural resources. According to the State Protocol Agreement between the Wyoming BLM and the Wyoming SHPO, grazing lease renewals that do not include seasonal grazing changes or changes in livestock types are exempt from case-by-case review. As per Appendix B item #27 and following section IV(A)(3) of the Wyoming State Protocol, on 09/19/11 the Bureau electronically notified the Wyoming State Historic Preservation Office (SHPO) of this grazing lease renewal.

4.1.2 Livestock Grazing

Alternative A- No Grazing

FLPMA requires the BLM to manage public lands and resources according to the principals of multiple use and sustained yield and recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber. FLPMA also requires the BLM—except in cases of emergency—to give two years' notification when an authorization for domestic livestock grazing is cancelled, in whole or in part, to devote the associated lands to another public purpose, including disposal.

The Buffalo RMP states as a resource management decision that *livestock grazing is allowed on all public lands in the resource area except on about 6,000 acres where it has been determined to be incompatible with other resource uses or values.*

There are no fences or natural barriers separating BLM and non-BLM lands. At this time, fencing out the public lands is not practical or cost effective. If extraordinary circumstances arise, such as the identification of an endangered plant or damageable cultural resource on the site, fencing may be a greater priority, and the BLM will address the matter in a separate EA. If the public lands are not leased, and subsequently not fenced, any livestock use occurring thereon is unauthorized. Selecting this alternative will affect how the adjacent private and state lands are grazed because the operator must keep livestock off public lands through herding or fencing, or else be in violation of federal grazing regulations. The mixed ownership pattern in the BFO resource area makes herding difficult, in addition to the fact that herding does not ensure that public lands are not grazed. A rider needs to remain with livestock at all times. Because it is not economically feasible for the BLM to fence all federal land parcels, fences will likely be constructed on private land, fragmenting the area and making BLM unable to stipulate wire spacing to facilitate wildlife movement. Most four-strand fences on private land have a top wire of 46-48 inches with 10-12 inch wire spacing and all wires are barbed. In the absence of fences, the BLM must constantly supervise the public lands to assure they are not being grazed.

No adverse resource impacts resulting from livestock grazing have been identified which would warrant cancellation of all grazing on these allotments. The Buffalo RMP allows for adjustment of forage allocation based on an evaluation of monitoring, field observations, or other data as needed. Additionally, changes in grazing practices can be effective in mitigating impacts without a corresponding reduction in forage allocation.

Alternative B- Preference Transfer & Lease Issuance

Rangeland vegetation inventory (MRB, 1957) data indicates an adequate amount of forage is available to support the proposed number of livestock and for wildlife use and the effects of that use in these allotments. The new grazing leases authorize the same numbers and kind of livestock and season of use as the existing lease. This action is not proposing any changes to grazing management. The BLM does not expect the issuance and transfer of the grazing leases to have any effects on range management.

4.1.3 Invasive Species/Noxious Weeds

Alternative A- No Grazing

Removing livestock grazing from the public land can promote growth—and potential overgrowth—of perennial grasses and forbs, thus crowding out or reducing the potential for invasion of noxious and/or invasive species. However, the overgrowth of vegetation increases the availability of fine fuels, which also increases the risk of wildfire. These fires would also be more intense, allowing opportunistic noxious and invasive species to colonize the public lands. Cooperative weed control efforts could discourage overgrowth of vegetation and decrease the fire return interval.

Alternative B- Preference Transfer & Lease Issuance

Implementing appropriate grazing use, as described in the proposed action, along with ongoing cooperative weed control efforts, benefits the health of the native plant community. A healthy native plant community often provides competition against the establishment and/or spread of noxious weeds. Issuing the grazing lease will not result in any additional impacts in relation to the spread of noxious weeds.

4.1.4 Wildlife, Threatened & Endangered, Candidate and Sensitive Species

Alternative A- No Grazing

If grazing is removed from the allotments, there will be "no effect" on black-footed ferret and Ute ladies'-tresses orchid, because there is not suitable habitat for these species. While suitable Ute ladies'-tresses habitat was shown in BLM models, an on-site visit revealed that suitable habitat was not present in the allotment. Riparian areas were dominated by upland vegetation and dense rhizomatous species and channelized with steep stream banks. The site modeled as potential habitat was composed of upland vegetation and was dry in mid-August with a water table lower than 12 inches below the soil surface. Cancelling grazing may have a negative impact on mountain plover, burrowing owls, and black-tailed prairie dogs by reducing the number of grazed areas, which provide preferred habitat for these species.

Alternative B- Preference Transfer & Lease Issuance

(See tables in Section 3.5)

The proposed action will have "no effect" on black-footed ferret and Ute ladies'-tresses orchid, as suitable habitat for these species is not present in the allotments. While suitable Ute ladies'-tresses habitat was shown in BLM models, an on-site visit revealed that suitable habitat was not present in the allotment. Riparian areas were dominated by upland vegetation and dense rhizomatous species and channelized with steep stream banks. The site modeled as potential habitat was composed of upland vegetation and was dry in mid-August with a water table lower than 12 inches below the soil surface. The proposed action may impact mountain plover, because the birds prefer areas with little vegetative cover (Derner et al. 2009).

4.1.4.1 Candidate Species

Alternative A- No Grazing

Under the no grazing alternative, no benefits to sage-grouse habitat as a result of grazing management would occur. Excluding livestock does not necessarily cause an area to return to its pre-grazing ecological condition or guarantee improvements in species richness, diversity, or vegetative production (Manier and Hobbs 2007). Some habitats reach a threshold where livestock exclusion does not have an effect on the current trend (Wambolt and Payne 1986, Sanders and Voth 1983). Other research suggests that rest from livestock grazing in Wyoming big sagebrush habitats may improve understory production while decreasing sagebrush cover (Wambolt and Payne 1986). On Wyoming big sagebrush sites with dense sagebrush and annual grass understory, eliminating livestock grazing can increase fire risk which results in habitat degradation (Peters and Bunting 1994, West 1999).

Alternative B- Preference Transfer & Lease Issuance

The proposed action "will impact" greater sage-grouse habitat. Livestock grazing can benefit or degrade sage-grouse habitat on the allotment, depending on the timing, stocking rate, and habitat affected. Fall grazing may favor upland forb production, and spring grazing may be used to remove herbaceous cover and make forbs more accessible (Smith et al. 1979, Fulgham et al. 1982). Spring and early summer grazing may help control invasive weeds and remove woody plants, thereby decreasing the risk of wildfire that could remove large areas of habitat (Mosley 1996, Olson and Wallander 2001, Meritt et al. 2001, Riggs and Urness 1989).

For over a century, the dominant land use in the PRB and on these allotments has been livestock grazing. In light of this land use, sage-grouse continue to occur in the area.

Excessive or poorly managed grazing causes degradation of sagebrush ecosystems and thus sage-grouse habitat (BLM 2002). Inappropriate grazing management in uplands can reduce perennial grasses and forbs while favoring annual grasses and increasing sagebrush cover (Branson 1985, Tisdale 1994, Beck and Mitchell 2000, Bork et al. 1998). This may impact sage-grouse, because they rely on perennial grasses for escape cover and residual herbaceous cover for screening cover in nesting habitat. Forbs are positively associated with survival and recruitment of sage-grouse chicks. Inappropriate grazing that damages meadows and riparian areas can harm sage-grouse, because these areas are critical for sage-grouse in late summer. Livestock may occasionally trample sage-grouse nests or cause sage-grouse to abandon their nests (Call 1979, Patterson 1952).

Livestock grazing has occurred historically on this allotment and the BLM expects no additional impacts, other than those that have already taken place as a result of long-term use, from implementation of the proposed action. Continuing to manage for the Wyoming Standards for Rangeland Health will promote sage-grouse habitat viability.

4.2 Cumulative Effects

Cumulative effects are those resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. Identified actions include noxious weed control and sage-grouse protection. If future assessments reveal that rangeland health standards are not being met due to livestock grazing, the BLM will address these issues before the start of the next grazing season as required by 43 CFR 4180.

The BLM will continue managing the Dry Muddy Creek and Patchwork Allotments to achieve the Wyoming Standards for Rangeland Health. All elements of the environment will benefit from rangelands in good health. The applicants are not proposing any projects or other surface disturbance in connection to this lease transfer and issuance, and the terms and conditions of the leases will remain the same. Thus any cumulative impacts resulting from the proposed action should be minor.

4.2.1 Noxious Weeds

Noxious weeds/invasive non-native plants are present in the assessment area to varying degrees. Livestock grazing may benefit certain weeds by reducing competition with grasses but may also help control other species through defoliation. Currently the BFO is addressing the situation by mapping weed locations and treating them with herbicides or bio-controls in conjunction with the local weed and pest organizations.

4.2.2 Sage-grouse

The sage-grouse population in northeast Wyoming is exhibiting a steady long term downward trend (WGFD 2008a, USFWS 2010). The figure below illustrates a ten-year cycle of periodic highs and lows. Each subsequent population peak is lower than the previous peak. Long-term harvest trends are similar to that of lek attendance (WGFD 2008b). Habitat fragmentation is the primary attributor to these declines (USFWS 2010).

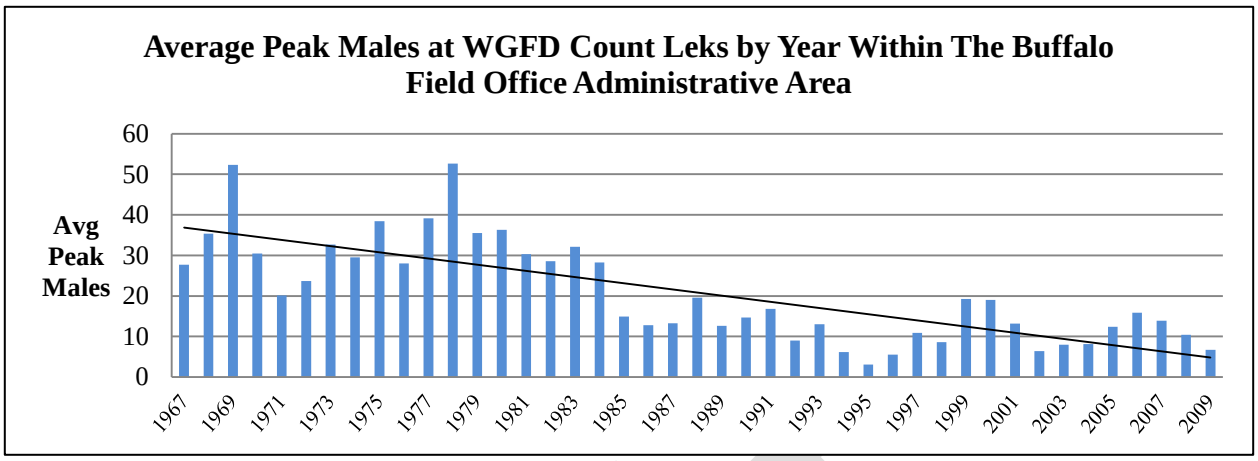

Figure 1

Average peak number of male sage-grouse per active lek and trend line within the BFO 1967-2009

4.3 Mitigation Measures Considered

The terms and conditions included as part of the term grazing lease will mitigate anticipated impacts. No additional mitigation measures are proposed.

4.4 Residual Effects

There are no residual impacts associated with the proposed action.

5.0 Tribes, Individuals, Organizations or Agencies Consulted

Ronald & Kathleen McPhee
Patchwork Partners, LP

6.0 List of Preparers

Charlotte Darling, Biological Science Technician

6.1 List of Reviewers, BLM Buffalo Field Office

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Seth Lambert	Archaeologist	Cultural Resources
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John Kelley	Planning & Environmental Coordinator	NEPA Planning

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